Pudendal Neuropathy: Diagnosis

Stanley Antolak, Jr., MD
Edina, Minnesota, USA

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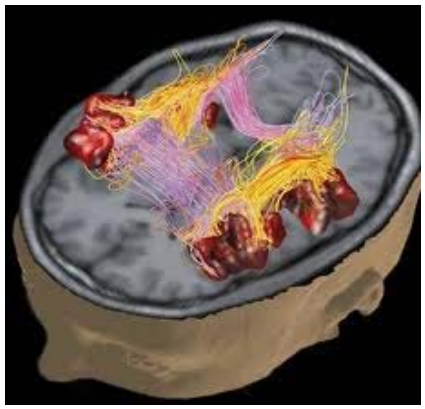
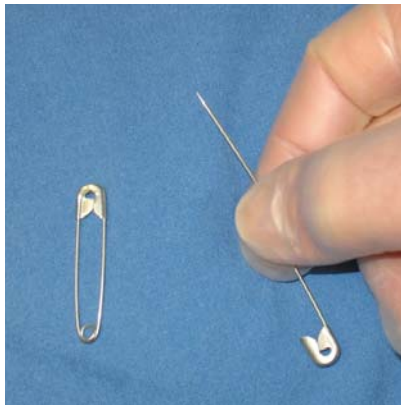
Supported by the Pudendal Neuralgia Foundation

Diagnosis of pudendal neuropathy can be quite easy
Two diagnostic tools are necessary.

- Think of the possibility of neuropathic causes of pelvic pain.
  Cerebrum. (Awareness).



- Use proper test equipment.
  Safety pin.



Neuropathic pelvic pain is complex.

- The receptive fields of the multiple pelvic sensory nerves overlap.
- The 'territory' of the pudendal nerve is highly variable.
  - *Anatomical displacement of the ventral axial line* results in unusual sites of pudendal pain complaints.
- PN is a mixed nerve and is not damaged uniformly so a wide variety of symptoms is possible.
- Central sensitization has great impact on symptoms.

Diagnosis of pudendal neuropathy can be quite easy

- Office physical examination

  92% have a positive diagnosis of pudendal neuropathy.

- Addition of two simple office neurophysiological tests increases diagnostic accuracy to 100% .

CPP: Is there really a simple answer?
Yes…perhaps,
but there are additional considerations.

- 64% have secondary neuropathic pain generators
- 58% have voiding complaints

Secondary peripheral neuropathies (Pain generators)

- Maigne syndrome (posterior ramus syndrome or thoracolumbar junction syndrome)
- Ilioinguinal and iliohypogastric neuropathies
- Abdominal cutaneous nerve entrapment
- Middle cluneal neuropathy
- Perineal branch of posterior femoral cutaneous nerve.

Is pelvic surgery the simple answer?

- Lady from Minnesota; n=11
- Lady from Minnesota, para 0-0-0; n= 4 laparoscopies + hysterectomy
- Lady from Wisconsin; n=11; 5 laparoscopies, 6 open procedures
- Lady from Wisconsin; n=16
- Lady from California; n=17
- Man from Wisconsin; n=4, including orchiectomy

- All had PN and at least one additional pelvic neuropathic pain generator.

- Practitioners must suspect a neuropathic basis rather than a morphologic or bacteriologic cause.

Monitor treatment with Symptom Scores

(extremely helpful)

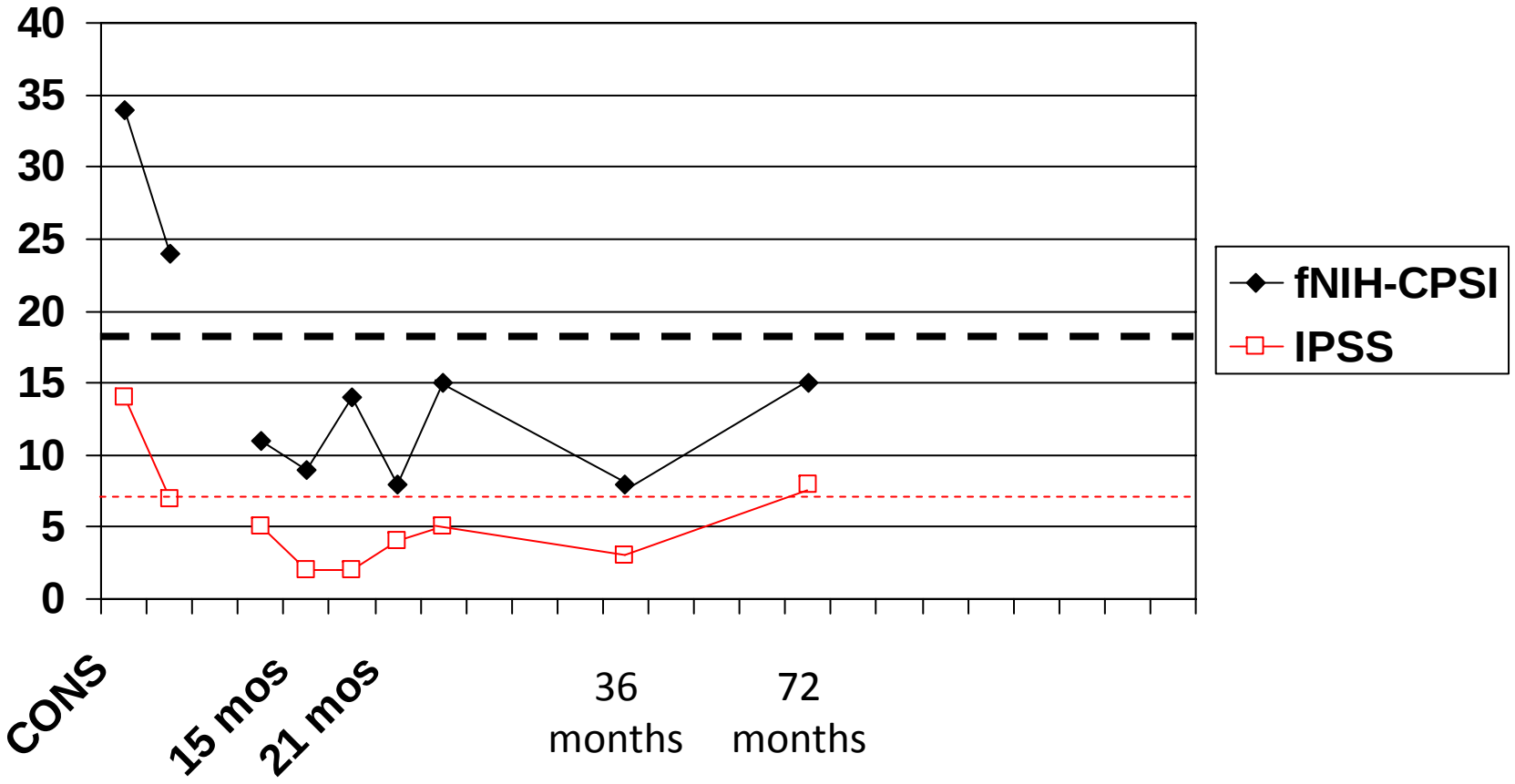
NIH-CPSI =National Institutes of Health-Chronic Prostatitis Symptom Index (also female version).

AUASI = American Urological Association Symptom Index (International Prostate Symptom Score)

A newer version, useful in both genders is available.

Genitourinary pain index (GUPI)
Urology 2009;74:878-9.

Scores permit a rapid overview of individual patient's treatment response (72 months).



42 year old female; nerve protection only + amitriptyline 40 mg @ HS.

DoRe

“Wind up”

Multiple, repetitive stimuli “agitate” the spinal cord neurons. Progressively smaller stimuli cause disproportionate, larger responses. Central sensitization occurs.

“Central sensitization”

Ice coating is analogous to central sensitization .

On icy roads minor driving errors cause problems.

In central sensitization the nervous system responds in unusual and unpredictable ways to minor stimuli.

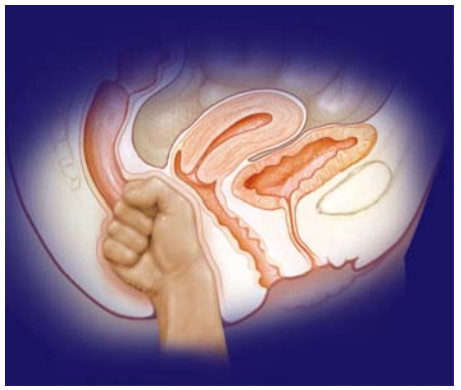
Central sensitization

- Does sexual arousal aggravate your pelvic pain?
- Does orgasm or ejaculation cause pain?
- Do you have “something” in your rectum, vagina?
- Are you sitting on a rock, golf ball?

Central sensitization: pelvic foreign body sensation.

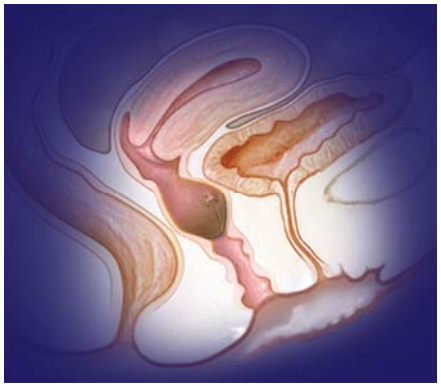
78 y/o female:

large fist; six inches up in rectum



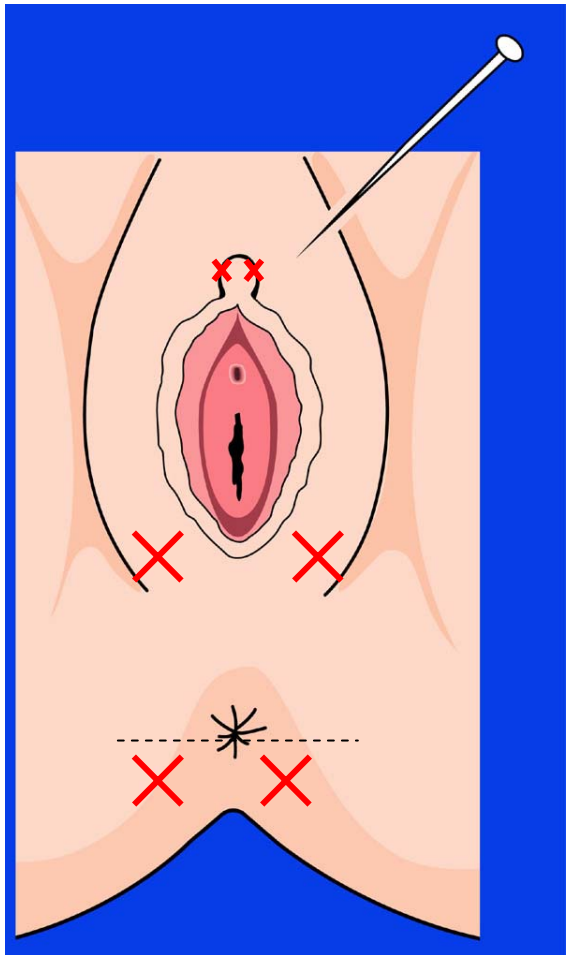
33 year old female:

Tip of football (American) exiting from the vagina; at 20 degree angle from the right side



- Size of foreign body (pelvic, vaginal, rectal) changes with severity of pain.

Sensory examination with pinprick
The "premier" office test for pudendal neuropathy.

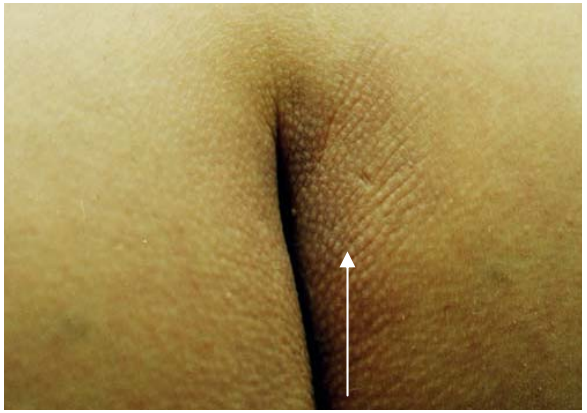


- Simple, inexpensive
- Minimal time
- Identifies neuropathy rapidly
- Compare to medial … "same," or worse (hyperalgesia), or less (hypoalgesia).
- "Asymmetric" changes are typical.
- Evaluate IRN posteriorly

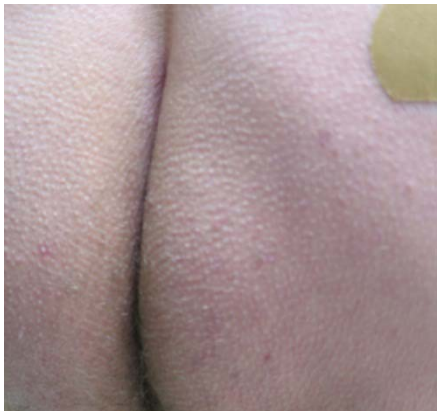
Turner. Am J Obstet Gynec. 1991;165:1233
Zuelzer. Berl Klin Woch 1915;52:1260

Observation of skin for neurogenic inflammation; typically @ natal cleft

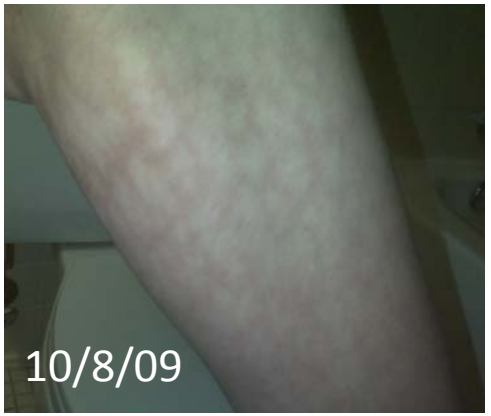
Peau d'orange



Cutis anserina



Cutis reticularis



(+ match stick test)

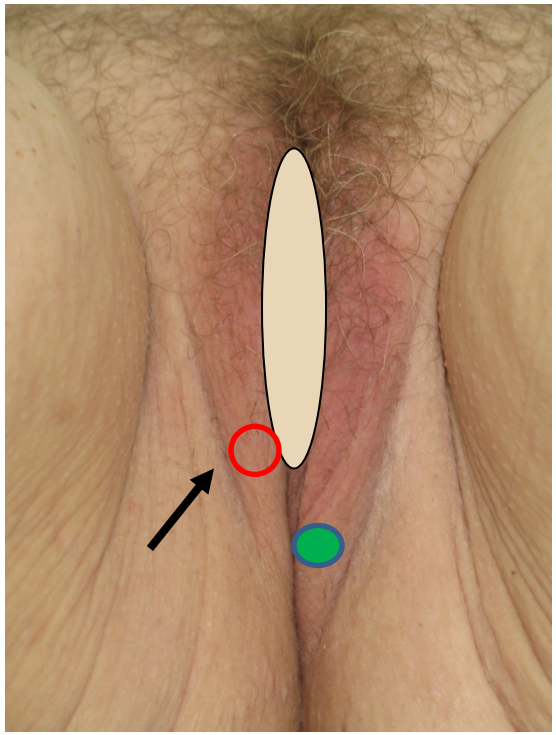
Pudendal neuropathy is a complex regional pain syndrome

Retraction of labia: unilateral right perineal pain

Labial changes from excessive autonomic activity.

Right labium contracted.

Hyperalgesia to pinprick



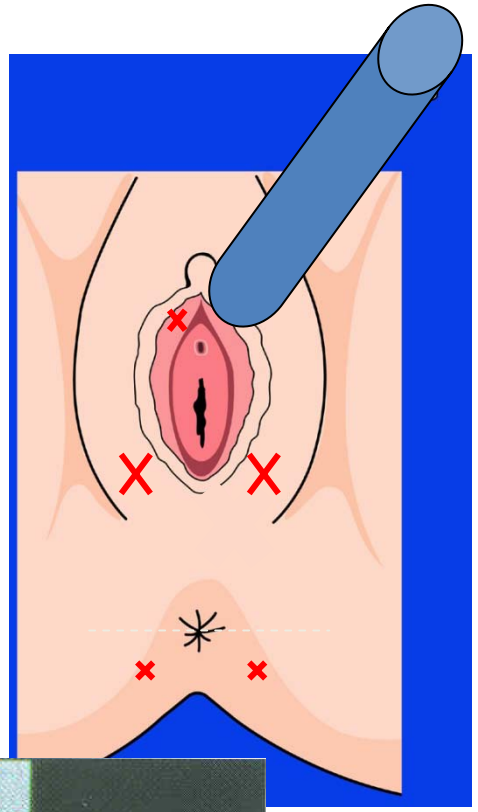
Left labium relaxed.

Normal sensation to pinprick.

After the physical examination perform two neurophysiological tests.

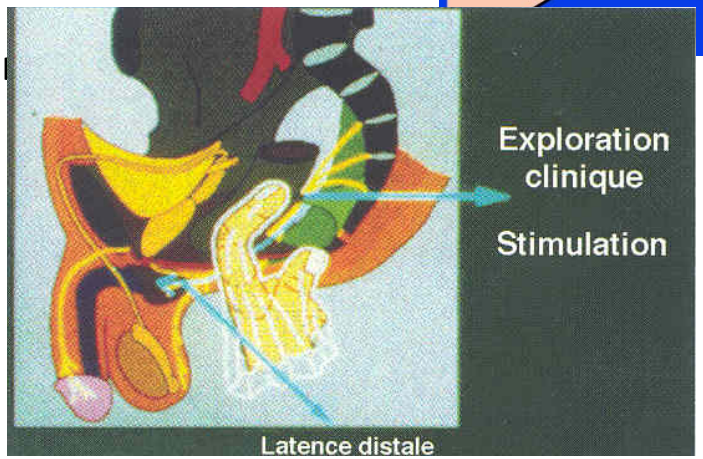
1. WDT—warm detection threshold

- **NTE-2-A (Physitemp, USA)**
- **Examine all six branches of pudendal nerve**
- **Abnormal in 92% of patients**



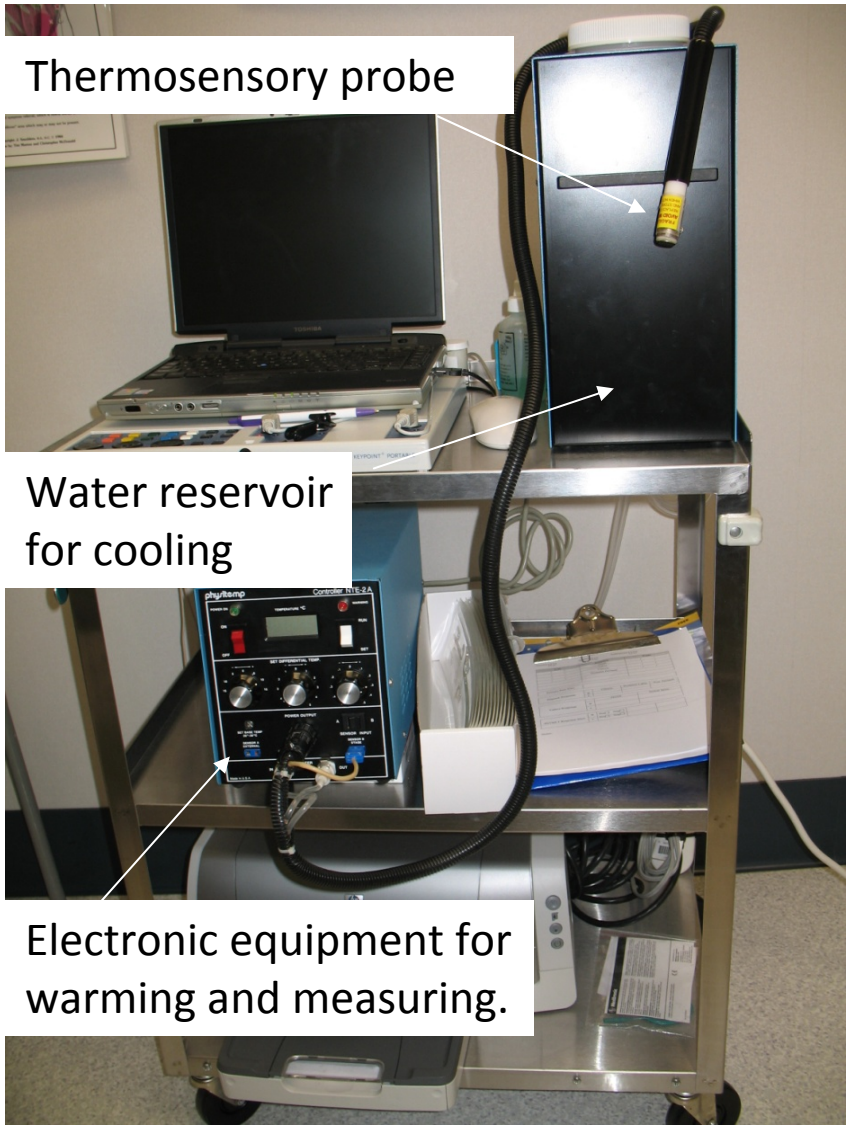
2. PNTMLT—pudendal nerve terminal motor latency test

- **Uses St. Mark electrode (Alpine Biomed, USA)**
- **Tests the function of motor fibers**
- **Electrode placed over PN at ischial spi**
- **Latency >2.2ms is abnormal**
- **>90% of motor fibers must be damaged for PNTMLT to be abnormal. (42% of patients).**

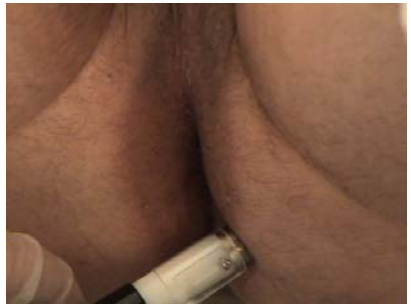


Warm detection threshold test

Physitemp NTE 2A



- Begin at neutral temp (usually 31.5C).
- Test at 2°C and 1°C increments.
  (In past I also used 4°C and 0.1°C)
  This is the stepping algorithm.
- Patient states when probe changes from neutral to the slightest bit warm.



	Rt	Left	
Clitoris	>43.5	36.5	
Labium	>43.5	41.2	
Anus	>43.5	37.4	'cold'

In this patient, Warm Detection Threshold Test demonstrates central sensitization

	Right	Left
Clitoris	>43.5	36.5
Labium	>43.5 Felt pain in RLQ	41.2 Felt pain in LLQ
Anus	>43.5 Felt pain in toes of **left foot**	37.4 Felt pain in toes of **right foot**

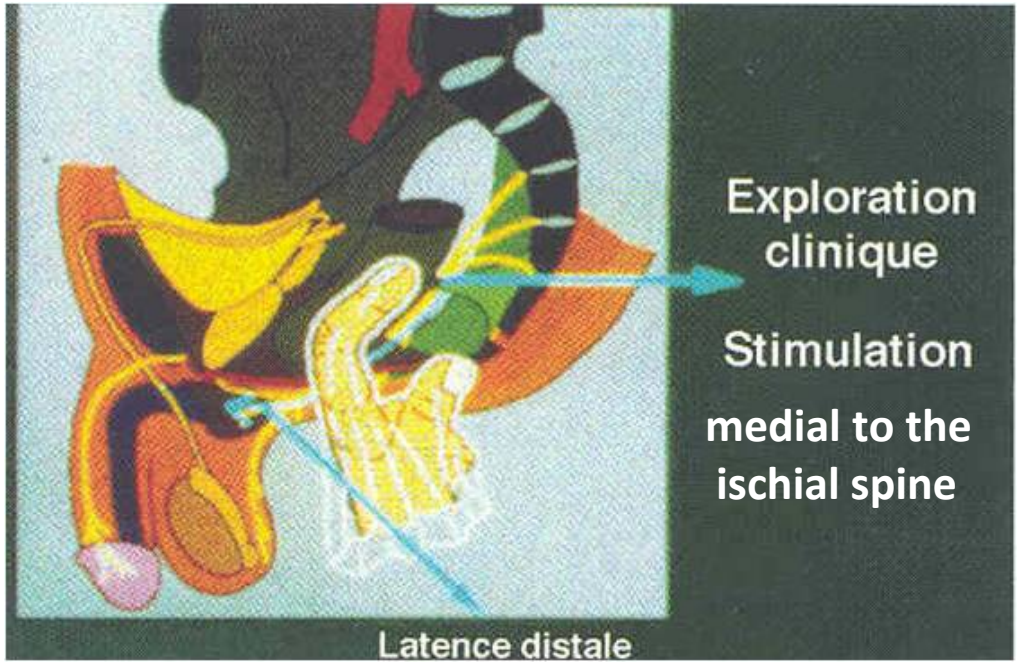
38 year old woman; pudendal neuropathy and 4 additional pelvic pain generators

Warm detection threshold is the best test to confirm pudendal neuropathy (92% +).

- It is non-invasive
- Simple to perform
- Identifies changes in each branch of the pudendal nerve.
  - Dorsal nerve of clitoris
  - Perineal nerve
  - Inferior rectal nerve
- Stimuli can evoke responses that indicate central sensitization.
  - Warmth in bladder; urge to void
  - Pain in abdomen/foot / toe

Pudendal Nerve Terminal Motor Latency Test (PNTMLT)

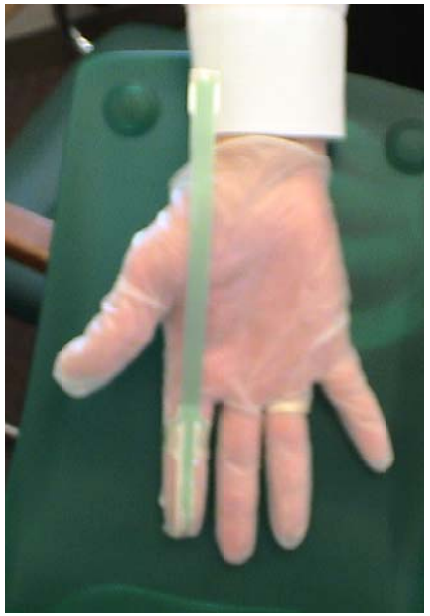
Dantec Keypointe software (Medtronic)



Dr. Jean Jacques Labat, Hotel Dieux, Nantes, FR

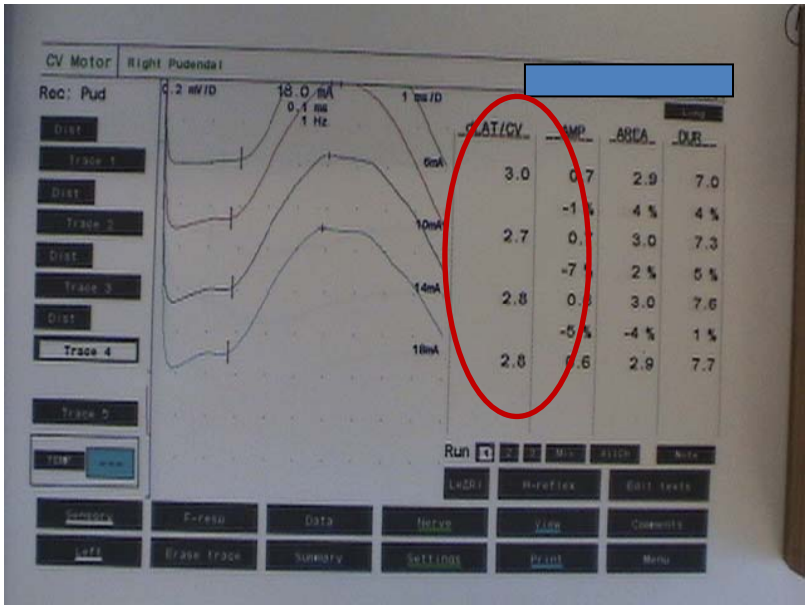
42% abnormal PNTMLT

45% electrical stimulus reproduces symptoms



St. Mark's electrode (Alpine Biomed)

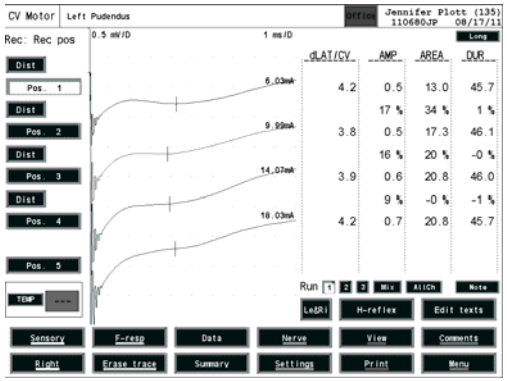
Pudendal nerve terminal motor latency test (PNTMLT)



Average in this patient = 2.8ms (elevated). [Normal<2.2ms] .

Very strong wave generated in nerve (large amplitude).

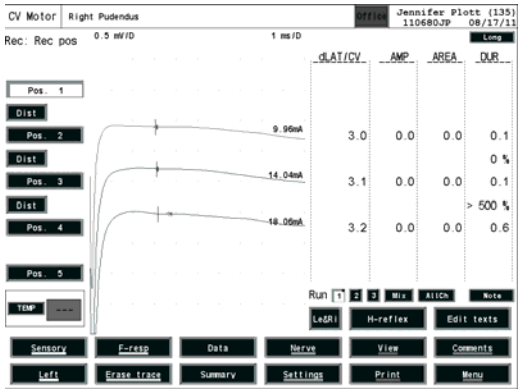
Central sensitization identified by PNTMLT



PNTMLT prolonged with poor amplitude bilaterally

Stimuli on right side caused inguinal pain.

Stimuli on left side caused pain at left ASIS.



Pinprick

	L	R
clitoris	hypalgesia	hypalgesia
labium	hypalgesia	Hyperalgesia
anus	normal	normal

Warm detection threshold normal.

Other Neurophysiological Tests are available.

- SEP-somatosensory evoked potentials
- Bulbocavernosus latency
- EMG
  - Pelvic floor
  - Anal sphincter
  - Urethral sphincter

Summary of concepts in diagnosis of PN

- Awareness that peripheral neuropathies cause pelvic pain
- Ask the “proper” questions
- Perform consistent 9 minute examination.
- Be alert to secondary central sensitization.
- *Objective neurophysiological testing (+/-)*

After making the diagnosis

- Have a treatment plan
  - Prevention of further nerve damage
  - Perineural blocks of local anesthetics and steroids
  - Surgical decompression

- Have a plan for treatment failures

CPP: Is there a simple answer?

- Yes…perhaps, but

- 64% of patients have secondary neuropathic pain generators

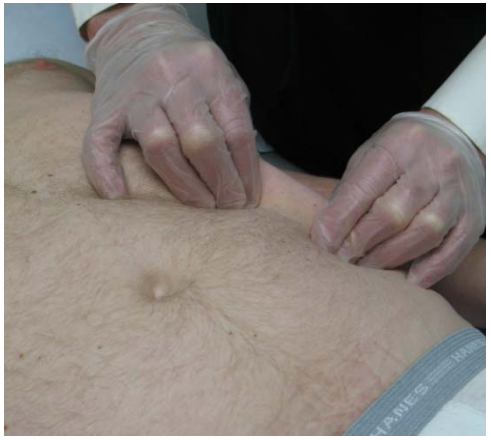
Diagnosing secondary pelvic neuropathies

Neuropathy	Evaluation
Maigne Syndrome (TLJ)	Skin rolling; flank and abdominal wall
Abdominal cutaneous nerve entrapment	Pressure at lateral border of rectus muscle
Ilioinguinal-iliohypogastric unilateral	Pressure at external inguinal ring, near pubic tubercle superior and inferior to the spermatic cord or round ligament
Ilioinguinal-iliohypogastric bilateral	Same
Middle cluneal neuropathy	Pressure medial to S-I joint over S 2-3-4

Secondary pelvic neuropathies in patients with pudendal neuropathy (64%)

Neuropathy	Males (n=25)	Females (n=26)
Maigne Syndrome (TLJ)	11.6%	57.6%*
Abdominal cutaneous nerve entrapment	5.8%	15.4%
Ilioinguinal-iliohypogastric unilateral	35.3%*	11.5%
Ilioinguinal-iliohypogastric bilateral	23.5%	38.4%*
Middle cluneal neuropathy	35.3%	56%*

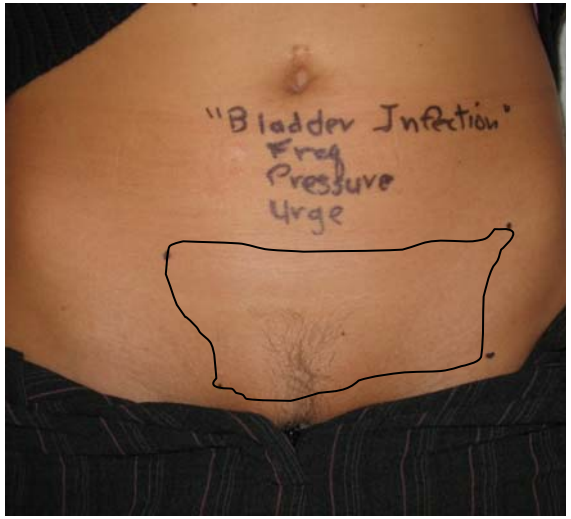
Evaluation in patients with CPP:
Maigne syndrome or posterior ramus syndrome.



Gentle squeeze; roll from flank to hypochondrium.

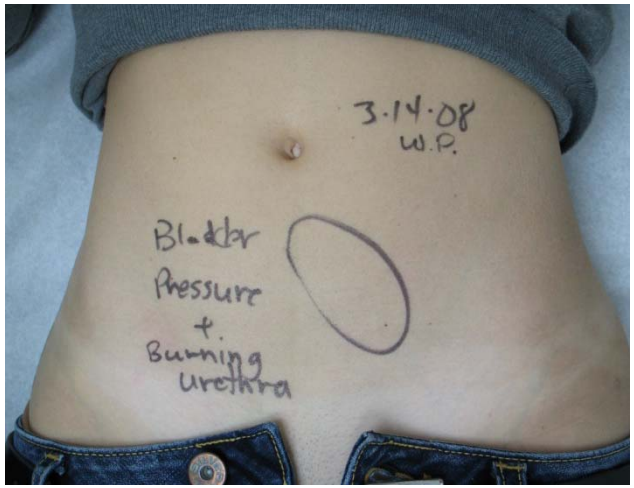
Painful skin rolling = posterior ramus syndrome

Skin rolling often causes urge to void and urethral pain.



Cause: Poor posture,
Slouched shoulders
Antalgic position

Treatment:
Postural correction
Subcutaneous infiltrations.
Paraspinal anesthetic blocks.



Postural correction exercises for Maigne syndrome

Stand “tall and proud” like a Scots Guard

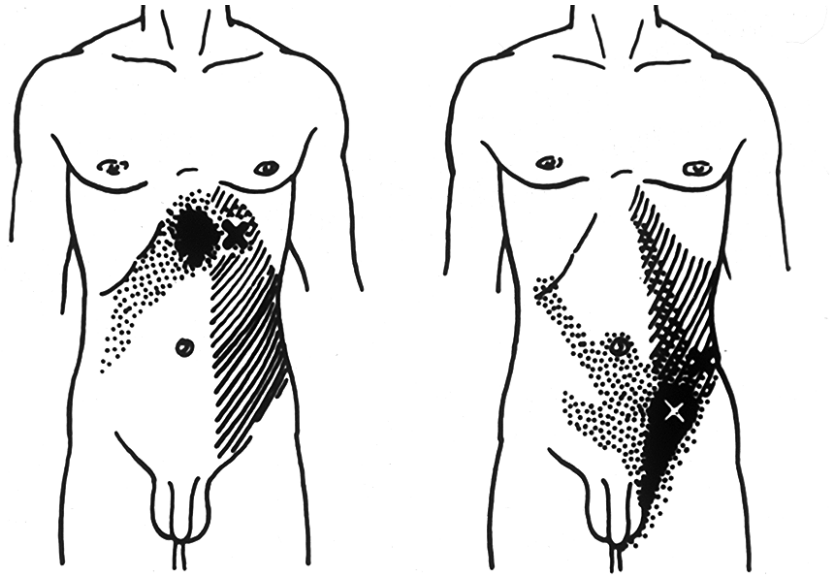
Wall “pushes”
To extend spine and correct shoulder position

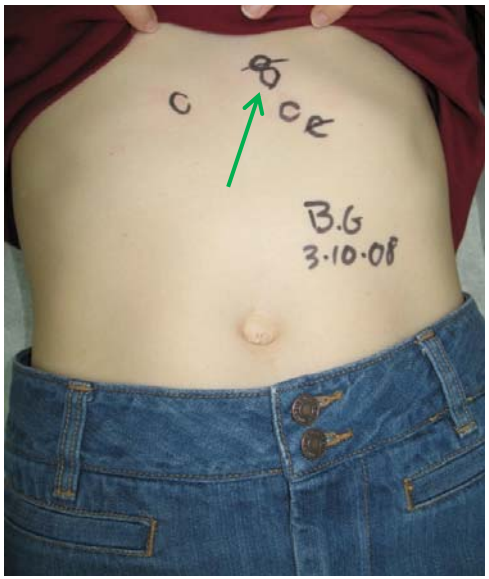
Pillow under mid-back to extend T-L region

Roll under vertebral column

Secondary neuropathic pelvic pain generators.

- Abdominal cutaneous nerve entrapment (ACNE)

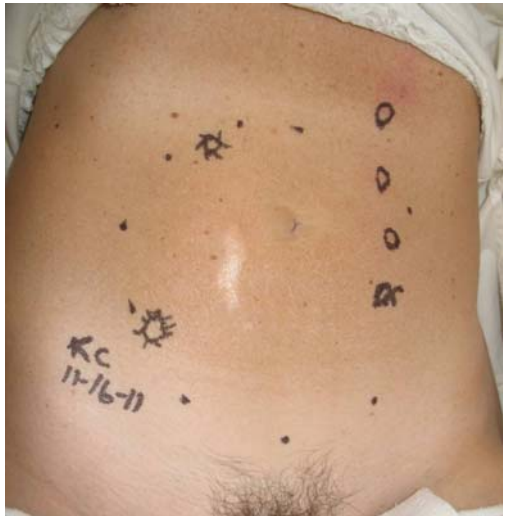




Thoracic cutaneous nerve entrapment (TCNE).

During injection of middle site she felt a "tube of pain going to the vagina."

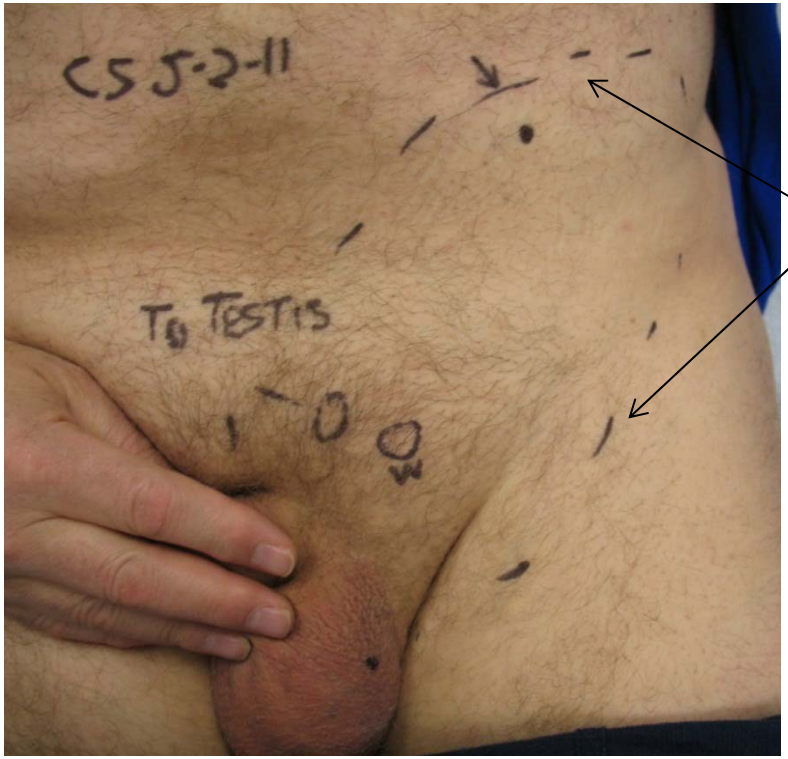
Concurrent peripheral neuropathies: Evaluation 2 hours following pudendal nerve perineural injections (PNPI)



1. ACNE
   - -Three tender sites left rectus border
   - -T 9-10-11
2. Maigne syndrome (TLJ)
   - -Painful skin rolling within dotted circle.

Ilioinguinal and iliohypogastric neuropathy

“Testis” pain persists after effective PNPI.

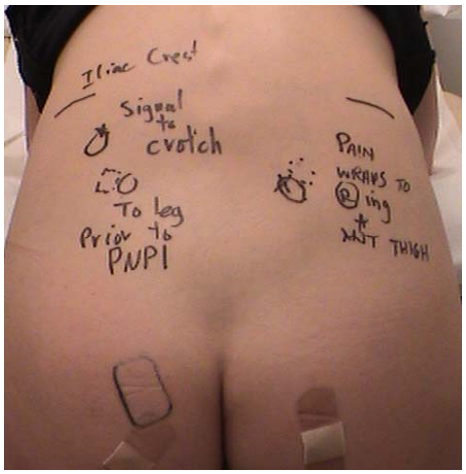


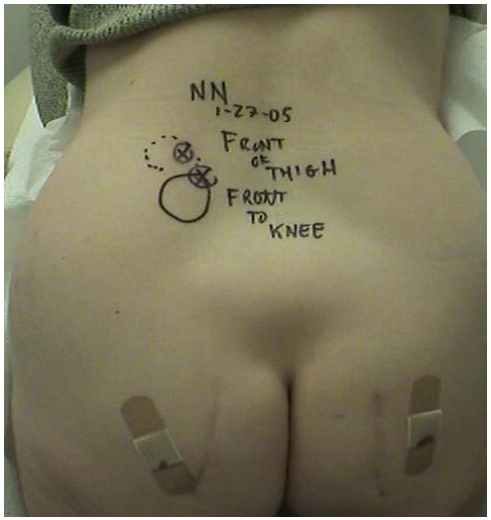
Note broad extent of analgesia after PNPI including dorsal nerve of penis and perineal nerve. This represents extension of the ventral axial line that is normally at the base of the penis.

Bupivacaine/lidocaine infiltrations at two sites provided complete pain relief.

Neuropathic pelvic pain: middle cluneal neuropathy

Back mouse (episacroiliac lipoma)





- Palpable subcutaneous lipomas
- Pressure reproduces “low back” pain. (sacral)
- Pain may radiate
  - Vagina
  - Inguinal
  - thigh
- Not sacroiliac joint pain
- Middle cluneal nerves are posterior rami S 2-3-4

Ries E. Episacroiliac Lipoma. Amer J Obstet Gynecol 1937; 34:492-8.

Diagnosis of Pudendal Neuropathy Summary

- Suspect PN because of patient symptoms
- Evaluate with pinprick examination
- Observe for skin changes
- (Do N-P tests if available)
- Physical exam for other pelvic neuropathic pain generators
  - Maigne syndrome
  - Ilioinguinal and iliohypogastric neuropathies
  - Abdominal cutaneous nerve entrapment
  - Middle cluneal neuropathy
  - Perineal branch of posterior femoral cutaneous nerve


WHAT ARE YOU DOING?
I'M SEEING IF I CAN READ YOUR THOUGHTS WITH MY STETHOSCOPE
YOU THINK I'M AN IDIOT, DON'T YOU?
AMAZING!